

Cost and Revenue – Challenge

You have completed both the Simulation Tasks and the In-Class Debrief for Cost and Revenue. The following question is meant to challenge you to apply all you have learned about this topic thus far, and also to present that information in a clear, concise manner.

You will be completing this question as an individual, not as a member of your team.

Challenge Case

As APEX anticipates significant increases in demand for PVC pipe, it is considering two alternatives:

Plan A: Produce all PVC in Illinois, and provide nationwide distribution from that one site.

Plan B: Produce PVC pipe both at one plant in Illinois and one plant in Colorado. Distribute east of the Mississippi from Illinois; west of the Mississippi from Colorado. (Or if our story line is flexible enough, locate the Eastern plant in Ohio, rather than Illinois.)

Under Plan A, the fixed cost of establishing the one plant is \$375,000. The variable cost per hundred feet will be $\$3 + .001Q$. So, for example, the total cost of producing 400,000 feet will be $\$375,000 + 4000[\$3 + .001(4000)] = \$403,000$.

Under Plan B, each plant will be somewhat smaller, so the fixed cost per plant will be \$230,000. Variable costs per hundred-feet will be slightly lower: $\$3 + .0008Q$.

Distribution costs will also differ under the two plans. If all nationwide distribution is conducted from one plant, distribution costs will be \$1.25 per hundred feet. If there is one plant for each side of the Mississippi, distribution costs will be \$1.05 per hundred feet.

At what production volume does it become more cost-effective to build two plants, rather than one? Show the calculations used to arrive at your

answer by uploading a file (MS Excel, scan of a paper-based drawing, etc.)
to include with the Challenge for review.